

## TITLE OF INVENTION

Framer's Layout and Cutting Guide

(abbreviated quite often to "Framer's Guide")

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CROSS-REFERENCE TO RELATED APPLICATIONS "Not Applicable"

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH  
OR DEVELOPMENT "Not Applicable"

REFERENCE TO SEQUENCE LISTING "Not Applicable"

## BACKGROUND OF THE INVENTION

01 The Framers' Cutting and Layout Guide is a carpenter's tool to be used for home building and remodeling purposes.

02 When I did a patent search, on June 19, 2002, I only found one patent close to my work:

Framing Tape Measure Blade

US D 446,462

Primary examiner: Antoine Duvall Davis

Aug. 14, 2001

Field of Search: D/10/71, 72, 74

33/483-494

755-770

## Framer's Layout and Cutting Guide

This application claims priority to Provisional Application 60/418,238

### BRIEF SUMMARY OF THE INVENTION

03 The Framer's Layout and Cutting Guide is a series of icons, representing common framing functions, superimposed on/integrated-with a standard tape measure for the purpose of speeding-up and cleaning-up the house framing process for carpenter's. The Framer's Layout and Cutting Guide works independent from the tape measure as all the measurements are built-in. In combining the Framer's Layout and Cutting Guide with the standard tape measure one has to remember their differences as many of the functions on the Framer's Layout and Cutting Guide are floating: not measured from the end of the tape but from each specific functions common icon.

#### Layout Functions:

#### Read:

Squaring

floating (from 2" mark)

Sets of icons distinguishing 3-4-5 Right Triangles

The Common Stud

end of tape

Alone or part of a corner

Studs

end of tape (repetitive)

16" O.C. (on center), plus 3 1/2" & 5 1/2" offsets (when tying into corners),

24" O.C., plus 3 1/2" & 5 1/2" offsets,

16" & 24" O.C. combined, plus 3 1/2" & 5 1/2" offsets

## Layout (continued)

## Read:

Door Rough Openings/Trimmers

floating

Common Trimmer plus Standard Residential Rough Openings

Wall Tee's (ties)

floating

Common Tee Wing plus 2x4 and 2x6 Wings

Commercial 3-0 Door Rough Opening

floating

Commercial Header Mark

end of tape

## Cutting:

## Read:

Stud (92 5/8")

end of tape

Trimmer

end of tape

Headers

end of tape (repetitive)

Blocks

end of tape (repetitive)

Standard

Starter

04 The earlier patent, the Framing Tape Measure Blade, only allows for "X's" on every 16" & 24" on center stud layouts. The Framers' Cutting and Layout Guide provides a system of wood grain patterns to distinguish, not only the differences between 16" and 24" on center stud layouts, and for when they overlap (every four feet: 4', 8', 12', 16', etc., as 2 times 24" and 3 times 16" equal 4'), but also those of the 2x4 and 2x6 offsets. And again, many other framing functions.

## BREIF DESCRIPTION OF THE DRAWINGS

05 Frammer's Layout and Cutting Guide is a tape marker as opposed to a tape measure. That is, all the framing functions on the Guide are pre-measured and have icons to determine their variations. The icons are readily identified by both form and color, although there is no color in these drawings. There are three types of icons: single line, with cartouche and legend/signs for layout; inch-and-a-half icons, designating the location of two-bys (also for layout), and; the 1/8" cutting icons.

### Figure 1-A

06 The Common Stud is located in the first one-and-a-half inches of the tape. It is recognized by a large black "X" in its center. Wood grain pattern is off-center.

### Figure 1-B

07 Stud icons representing 16" O.C. (on center) have concentric circles simulating wood grains, with small open circles in their centers. The standard read has the circle centrally located while the 3 1/2" offset shows a half-circle, in the center of the bottom edge, and the 5 1/2" offset shows a quarter-circle in a corner of the icon.

### Figure 1-C

08 Stud icons representing 24" O.C. have concentric circles with large open circles in their centers. The standard read has the circle centrally located while the 3 1/2" offset shows a large half-circle, in the center of the bottom edge, and the 5 1/2" offset shows a large quarter-circle in a corner of the icon.



#### Figure 1-D

09 Stud icons representing 16" O.C. and 24" O.C. combined (every four feet) have concentric circles with large open circles in their centers, and within these large open circles are a group of small concentric circles whose largest circle is the same size as the corresponding 16" O.C. stud icon (i.e. the standard 16" O.C. stud icon small open circle is 5 mm in diameter; the standard 24" O.C. stud icon large open circle is 14 mm in diameter; and the standard 16" & 24" O.C. combined stud icon has a 5mm circle, with smaller concentric circles within it, inside the 14 mm open circle).

#### Page 2-4

10 All trimmer and wall tee icons have large "T's" in their centers set upon diagonal grid patterns with black "shoes" (triangles) in their corners.

#### Figure 2-A

11 The residential door rough opening trimmers have large white "T's" in their centers and are floating. All layout marks are taken from the common trimmer near the beginning of the tape (R.O. 0-0). Rough opening measurements are taken from the forward edge of the common trimmer (where the cartouche/sign is: R.O. 0-0) to the corresponding trimmers lead edge, where its cartouche/sign is (i.e. for the 2-6 door rough opening it's 32"). The icon for the 3-0 residential door rough opening trimmer is superimposed over the first stud icon for 16" and 24" O.C. combined-5 1/2" offset (the black "shoe" in the corner-showing the center of the wood grain-of this "T" icon may be left off in the future so that it doesn't interfere with recognizing the offset pattern). Some of the rough opening icons have header cut icons within their borders.

## Figure 2-B

12 The two commercial 3-0 door rough opening stud/trimmers are easily detected by the large black "T's" in their centers. The first icon is located near the beginning of the tape and is easy spotted, besides the black "T" in its center, because of the ellipses on its leading and forward edges with 2x4 and 2x6 designations within them. This is because the first commercial "T" icon is in the middle of the "Wall Tee Layout System" (the red "T's": see the first line of Figure 4-A; the dot pattern represents the color red). The second commercial "T" is just outside the four foot mark, 40 1/2" from the first "T".

## Figure 2-C

13 The wall tee layout system is readily found near the beginning of the tape due to the large red "T's" in their centers (dot pattern represents the color red). The common tee wing, nearest to the beginning of the tape, is connected to the other tee wings by lines with arrows having ellipse/signs in them to designate either the 2x4 or 2x6 wall tee being used. The 2x4 and 2x6 tee wings are superimposed over the first 16" O.C. / 5 1/2" offset stud icon and the 16" O.C. / 3 1/2" offset stud icon, respectively.

## Page 3-4

14 The cutting icons have double lines, an 1/8" apart (the width of a standard carbide tipped saw blade), connected by diagonals, and have angular perimeters on their legend/signs (i.e. square or hexagonal). The only layout icon to break this rule is the squaring function which has a diamond (being angular) within a cartouche.

### Figure 3-A

15 Header cuts are represented by hexagons, superimposed upon twin cut lines, with the letter "H" and the corresponding door opening size incorporated within it. These hexagons are usually centered between the lengths of the twin lines, except when the 2-0 header cut shares the same pair of cut lines as does the second 14 7/16" block.

### Figure 3-B

16 Block cuts have their respective designations (i.e. 13, 14, 21, 22) in squares, below the centers of the twin line cut icons. The standard block cuts (i.e. 14 & 22) have larger squares than the starter block cuts (i.e. 13 & 21) for easier recognition.

### Figure 3-C

17 The cutting icon for the 92 5/8" stud has its square legend/sign towards the top of the twin cut lines, with a capital "S" in its center, and is found within a stud icon (16" & 24" O.C. combined / 3 1/2" offset).

### Figure 3-D

18 The 81" trimmer also has its square legend/sign towards the top of the cut lines, but has a capital "T" in it.

### Figure 3-E

19 The commercial header mark, at 86 1/2", is comprised of a large "H" within a circle superimposed on a black cartouche. It comes just before the only pair of adjacent cut lines (multiples of 14 7/16" blocks and 13 11/16" blocks)

20 This figure shows a scaled-down version of the squaring functions on a 30'-2" tape so the various squaring sets can be seen. Each set has a different color for its cartouche while the common squaring icon (0) has three different colors on it.

Figure 3-G

21 This figure shows the three overlaps where color and good graphics are needed to make the icons readily distinguishable.

Figure 4-A

22 All of page 4-4 is considered as Figure 4-A. Ten plus feet of the Framer's Layout and Cutting Guide are shown so as to give the examiner a better view of the Guide. Each strip is sixteen inches. In the first strip, with the beginning of the tape in the upper right hand corner, and reading right to left, the icons start in this order: the common stud (X); the common squaring icon (0); the common residential rough opening trimmer (white "T"); the common tee wing (red "T"/dot pattern); and the first commercial 3-0 stud/trimmer (black "T"). Then comes the two wall tee wings (2x4 & 2x6) superimposed over a couple of stud icons, followed by a couple of block cutting icons. Running down the left and right sides of the page we can see the 16" O.C. stud icons being split. At four and eight feet we can see where the 16" O.C. stud icons combine with the 24" O.C. stud icons (standard 0" offset). Running our eyes down the center of the page we can see where the 24" O.C. stud icons (i.e. 2', 6', 10') stick out. The squaring icons are pointed out so that the first squaring set can be seen (i.e. 6'-2", 8'-2", 10'-2"). The rest should be self explanatory.

## DETAILED DESCRIPTION OF THE INVENTION

23 The Framer's Layout and Cutting Guide provides the carpenter with ready access to pre-measured-for-accuracy common framing functions, easily recognized by a system of icons. A brief description of the layout process for house framing is given so the examiner may better appreciate the value of the Framer's Layout and Cutting Guide.

24 Layout is the process of determining where various framing members will go in the production of walls. The first part of layout usually involves some squaring and the outlining of where walls are to be placed. After this, the main part of the layout is in the marking of plates, the horizontal members (high and low) which hold the vertical members in place. These vertical members can either be studs (full length), wall tees (for tying-in intersecting walls), trimmers to support window/door headers, cripples (short, on center two-bys, below windows or above headers), or corners.

### Squaring:

25 In squaring we always "cut" two inches, or take our read from the two inch line, so as to insure accuracy in our read, by eliminating the end of the tape (which moves to accept inside and outside measurements). Quite often squaring is done with two people, and the person holding the main part of the tape must remember to add two inches to the measurement. No need for that with the pre-measured Framer's Guide.

26 When we go to square a wall we use a 3-4-5 right triangle as a guide, as it is known that a triangle with edge-lengths of 3X, 4X, and 5X will necessarily create one angle being 90°. When squaring these walls it will be necessary to use the longest leg lengths possible to ensure squaring accuracy.

27. The existing wall and the wall being built always represent the two shorter legs of the 3-4-5 right triangle, and at their junction is a right angle. Opposite the right angle is an imaginary line called the hypotenuse, the 5X leg. In a 100'-2" tape the longest 5X leg can only be 100' (from the 2" squaring icon to the 100'-2" squaring icon;  $5X=100'$ ,  $X=20'$ ), thereby making the 4X length 80', and the 3X length 60'.

28 Here is an example of a typical squaring situation and as to how the Framer's Layout and Cutting Guide helps to speed up, and clean up, the squaring process. You're building a rectangular house with outside dimensions of 35' and 70'. The exterior walls have already been built and stood. There is a wall tee built into one of the 70' walls at 20' from one of the corners where a new wall is to be built, giving some dimension to what will be the front room. Our new wall is to be 15'-6" long. I plan to snap a chalk line on the decking where the new wall is to be located. I first make a mark on the bottom plate of the existing wall directly below the wall tee (to the side where the right triangle is to be formed), and then have my helper cut two inches, hold the common squaring icon to my new mark on the bottom plate, while I run the tape (the Framer's Layout and Cutting Guide) along the bottom plate towards the corner. I've pre-determined that the second squaring set (colored yellow) on the Framer's Guide will best suit my purposes, as the 4X length of 16'-2" is just longer than the length of my new wall and here is where I'll snap my chalk line to. Moving towards the corner I keep my eyes open for a yellow squaring icon with the number 3 in the legend/sign, distinguishing the third leg of my 3-4-5 right triangle. Here I place a second mark on the bottom plate. While my helper is still holding to the first mark I swing the tape and move to the general location where I'm to snap my

chalk line, for the new wall to be built, perpendicular to the existing outside wall, while sliding the tape in my hand, out to the yellow 4X squaring icon (16'-2"). Then, putting the Framer's Layout and Cutting Guide to the deck, I take my pencil, put it to the edge of the yellow icon and with a sweeping motion I mark the deck (floor), creating an arc. I then instruct my helper to move to the second mark on the bottom plate and cut two inches again. As he is doing this, the Framer's Layout and Cutting Guide is sliding through my fingers and extending. When it reaches the third yellow squaring icon, with the number 5 in the legend/sign, and my helper gets set on the second mark on the bottom plate, cutting two inches (where the common squaring icon is), I then find where the 5X squaring icon intersects my recently drawn arc and make another mark on the deck. A chalk line snapped through this point and the original mark on the bottom plate, below the wall tee, assures me that my new wall will be square to the existing wall, as one side of the bottom plate of my new wall will be nailed to the chalk line..

29 There are twenty "set" possibilities, in whole numbers, for a 100' tape (every five feet). In selecting which sets to use, in producing the tape, the determining factor was in eliminating overlaps (i.e. with 60'-80'-100' lengths and with 48'-64'-80' lengths, the second leg of the first set and the third leg of the second set are identical). One had to be eliminated. It was necessary to use the same sets in all tape lengths (i.e. 30'-2", 55'-2", 100'-2") so that you could use the tapes in conjunction with each other, if desired (if you used the Framer's Layout and Cutting Guide along with a standard tape measure, you would still be able to speed up the squaring process by referring to the Framer's Guide for pre-measured lengths on the various squaring sets).

## Squaring Functions for 30'-2", 55'-2", & 100'-2" tapes

30 For the squaring function it was necessary to extend the tape two inches so that 30', 55', and 100' dimensions (legs) could be used, as we are "cutting" two inches, for a clean read at the beginning of the tape. Remember, all reads are from the squaring icon at the 2" mark at the beginning of the tape.

31 There are three sets of three squaring reads for 3-4-5 right triangles on a 30'-2" tape: five sets of three squaring reads on the 55'-2" tape: and eight sets of three squaring reads on the 100'-2" tape (each longer tape includes the shorter tapes sets).

3X leg	4X leg	5X leg	Set Color
<b>30'-2"</b>			
6'-2"	8'-2"	10'-2"	red
12'-2"	16'-2"	20'-2"	white
18'-2"	24'-2"	30'-2"	blue
<hr/>			
<b>55'-2"</b>			
27'-2"	36'-2"	45'-2"	yellow
33'-2"	44'-2"	55'-2"	red
<hr/>			
<b>100'-2"</b>			
42'-2"	56'-2"	70'-2"	white
51'-2"	68'-2"	85'-2"	blue
60'-2"	80'-2"	100'-2"	yellow

Figure 0-A



## Plate Layout:

32 After we've done our squaring; marked and snapped lines on the decking (wood or concrete surface), where our new walls are to go, we are ready to build walls. We usually use 12 & 16 foot lengths for our plates, finding the straightest pieces for our purpose. Two 16 footers will work well for each of our short walls. There will be two 15'-6" walls, one on each side of the kitchen. We'll focus on the back wall because it has a standard 2-6 door in it, for accessing a pantry.

33 Having just nailed (or screwed) the plates together, so they don't move during during the layout process, I pull out my Framer's Layout and Cutting Guide and I hook it to the end of the plates and begin to pull (extend the tape). The plans inform us our studs are to be 16" on center. Because we are tying into the middle of a pre-existing wall we know that we will have no offset and our common stud, at the beginning of the Framing Guide will stand alone. We then make a mark at the forward edge of the icon for the common stud and proceed to make marks on both edges of each icon for 16" on center studs, following this up with a framing square, because it has a blade 1 1/2" thick, and put lines where every mark is. Now there is an 1 1/2" space between several sets of twin lines. Before we can designate each space, as either an "X" for stud or "C" for cripple, we need to see what other elements go into the wall. Besides the door, near the beginning of our layout, there will be a 2x4 wall tee 30" from the other end of the plates, to tie in a closet wall. The plans call for a 12" shelf on the right as we walk into the pantry and the door opening in front of them, so we can use the first 16" on center stud markings for our king stud (the stud on the hinge side of your doorway), leaving ample

room for the door to open unimpeded. Pencil in hand, I take out the Framer's Layout and Cutting Guide, and holding the end of the tape, slide my thumb to the lead edge of the common trimmer icon and place it next to my king stud. First I make a mark on the forward edge of my common trimmer, then I extend the tape to the "R.O. 2-6" trimmer, marking each side of it. After putting the tape measure away, I put two large "T's" between the new marks (one next to the king stud), draw lines with my framing square, adding a new line next to the far trimmer as a stud will have to support it, and put "C's" in the 16" on center marks between the two trimmers. Then I go to the other end of the plates and layout my 2x4 tee, 30" from the end. Having no interference from would be studs (16" on center stud layout), I open my Framer's Guide to the wall tee icons and place the forward edge of my common wall tee to the 30" mark (making sure the 2x4 tee is on the correct side of my mark) and proceed to mark off my tee wings. After drawing lines on my wing marks, I write the word "tee" in between them and can now finish my layout by putting "X's" in between any remaining open lines, designating all these as full studs.

34 Having the rough opening pre-measured saved me some time as I didn't have to do any calculating: door size-plus 2" for rough opening. With the trimmer icons in place there was no need to visualize them, especially if they ran into existing stud placements. The same goes for the wall tees; no need to visualize or add up inches on layout. The Framer's Layout and Cutting Guide will also save time when we go to cut our door trimmers (pre-measured trimmer icon), and the header-actually a "flat" 2x4 as the wall is non-load bearing-with the pre-measured header cut.

Stud Layout:

read from end of tape

35 A series of  $1\frac{1}{2}$ " icons are used to represent locations for both 16" and 24" on center (O.C.) studs, including  $3\frac{1}{2}$ " and  $5\frac{1}{2}$ " offsets. Offsets are needed when making outside corners. The studs in one wall have to be offset either  $3\frac{1}{2}$ " or  $5\frac{1}{2}$ " depending on your wall thickness (2x4 or 2x6) so that your plywood sheathing, code for corners, will fit properly.

36 The offsets for the 16" O.C., the 24" O.C., and the 16" & 24" O.C. combination stud icons are distinguished by the following simulated wood grains: a wood grain starting in the center = 0" offset (a standard read); a wood grain starting in the bottom center = a  $3\frac{1}{2}$ " offset; a wood grain starting in the corner = a  $5\frac{1}{2}$ " offset.

37 The on center layouts: 16" O.C.; 24" O.C.; and the 16" & 24" O.C. combined; are distinguished by their stud icons center. 16" O.C. stud icons have small open circles surrounded by concentric circles. The 24" O.C. stud icons have large open circles surrounded by concentric circles, and the 16" & 24" O.C. combined stud icons are a combination of the two except that when combined the smaller circle, now within the large open circle, has concentric circles within it (see drawing 1-4).

38 Every four feet each stud icon repeats itself (except for the common stud at the beginning of the tape). I'm experimenting with colors for easier recognition. Although the color combinations may change later on, it is important to know that the wood grains patterns will not, other than some refinement (i.e. realistic looking wood grains).

Stud Locations to 100':

16 = 16" on center, 24 = 24' on center, and C = 16" and 24" combined

O.C.	standard	3 1/2" offset	5 1/2" offset
16	15 1/4"- 16 3/4"	11 3/4"- 13 1/4"	9 3/4"- 11 1/4"
24	23 1/4"- 24 3/4"	19 3/4"- 21 1/4"	17 3/4"- 19 1/4"
16	31 1/4"- 32 3/4"	27 3/4"- 29 1/4"	25 3/4"- 27 1/4"
C	47 1/4"- 48 3/4"	43 3/4"- 45 1/4"	41 3/4"- 43 1/4"
16	63 1/4"- 64 3/4"	59 3/4"- 61 1/4"	57 3/4"- 59 1/4"
24	71 1/4"- 72 3/4"	67 3/4"- 69 1/4"	65 3/4"- 67 1/4"
16	79 1/4"- 80 3/4"	75 3/4"- 77 1/4"	73 3/4"- 75 1/4"
C	95 1/4"- 96 3/4"	91 3/4"- 93 1/4"	89 3/4"- 91 1/4"
16	111 1/4"- 112 3/4"	107 3/4"- 109 1/4"	105 3/4"- 107 1/4"
24	119 1/4"- 120 3/4"	115 3/4"- 117 1/4"	113 3/4"- 115 1/4"
16	127 1/4"- 128 3/4"	123 3/4"- 126 1/4"	121 3/4"- 123 1/4"
C	143 1/4"- 144 3/4"	139 3/4"- 141 1/4"	137 3/4"- 139 1/4"
16	159 1/4"- 160 3/4"	155 3/4"- 157 1/4"	153 3/4"- 155 1/4"
24	167 1/4"- 168 3/4"	163 3/4"- 165 1/4"	161 3/4"- 163 1/4"
16	175 1/4"- 176 3/4"	171 3/4"- 173 1/4"	169 3/4"- 171 1/4"
C	191 1/4"- 192 3/4"	187 3/4"- 189 1/4"	185 3/4"- 187 1/4"
16	207 1/4"- 208 3/4"	203 3/4"- 205 1/4"	201 3/4"- 203 1/4"
24	215 1/4"- 216 3/4"	211 3/4"- 213 1/4"	209 3/4"- 211 1/4"
16	223 1/4"- 224 3/4"	219 3/4"- 221 1/4"	217 3/4"- 219 1/4"

C	239 $\frac{1}{4}$ " - 240 $\frac{3}{4}$ "	235 $\frac{3}{4}$ " - 237 $\frac{1}{4}$ "	233 $\frac{3}{4}$ " - 235 $\frac{1}{4}$ "
16	255 $\frac{1}{4}$ " - 256 $\frac{3}{4}$ "	251 $\frac{3}{4}$ " - 253 $\frac{1}{4}$ "	249 $\frac{3}{4}$ " - 251 $\frac{1}{4}$ "
24	263 $\frac{1}{4}$ " - 264 $\frac{3}{4}$ "	259 $\frac{3}{4}$ " - 261 $\frac{1}{4}$ "	257 $\frac{3}{4}$ " - 259 $\frac{1}{4}$ "
16	271 $\frac{1}{4}$ " - 272 $\frac{3}{4}$ "	267 $\frac{3}{4}$ " - 269 $\frac{1}{4}$ "	265 $\frac{3}{4}$ " - 267 $\frac{1}{4}$ "
C	281 $\frac{1}{4}$ " - 288 $\frac{3}{4}$ "	283 $\frac{3}{4}$ " - 285 $\frac{1}{4}$ "	281 $\frac{3}{4}$ " - 283 $\frac{1}{4}$ "
16	303 $\frac{1}{4}$ " - 304 $\frac{3}{4}$ "	299 $\frac{3}{4}$ " - 301 $\frac{1}{4}$ "	297 $\frac{3}{4}$ " - 299 $\frac{1}{4}$ "
24	311 $\frac{1}{4}$ " - 312 $\frac{3}{4}$ "	307 $\frac{3}{4}$ " - 309 $\frac{1}{4}$ "	305 $\frac{3}{4}$ " - 307 $\frac{1}{4}$ "
16	319 $\frac{1}{4}$ " - 320 $\frac{3}{4}$ "	315 $\frac{3}{4}$ " - 317 $\frac{1}{4}$ "	313 $\frac{3}{4}$ " - 315 $\frac{1}{4}$ "
C	335 $\frac{1}{4}$ " - 336 $\frac{3}{4}$ "	331 $\frac{3}{4}$ " - 333 $\frac{1}{4}$ "	329 $\frac{3}{4}$ " - 331 $\frac{1}{4}$ "
16	351 $\frac{1}{4}$ " - 352 $\frac{3}{4}$ "	347 $\frac{3}{4}$ " - 349 $\frac{1}{4}$ "	345 $\frac{3}{4}$ " - 347 $\frac{1}{4}$ "
24	359 $\frac{1}{4}$ " - 360 $\frac{3}{4}$ "	355 $\frac{3}{4}$ " - 357 $\frac{1}{4}$ "	353 $\frac{3}{4}$ " - 355 $\frac{1}{4}$ "
16	367 $\frac{1}{4}$ " - 368 $\frac{3}{4}$ "	363 $\frac{3}{4}$ " - 365 $\frac{1}{4}$ "	361 $\frac{3}{4}$ " - 363 $\frac{1}{4}$ "
C	383 $\frac{1}{4}$ " - 384 $\frac{3}{4}$ "	379 $\frac{3}{4}$ " - 381 $\frac{1}{4}$ "	377 $\frac{3}{4}$ " - 379 $\frac{1}{4}$ "
16	399 $\frac{1}{4}$ " - 400 $\frac{3}{4}$ "	395 $\frac{3}{4}$ " - 397 $\frac{1}{4}$ "	393 $\frac{3}{4}$ " - 395 $\frac{1}{4}$ "
24	407 $\frac{1}{4}$ " - 408 $\frac{3}{4}$ "	403 $\frac{3}{4}$ " - 405 $\frac{1}{4}$ "	401 $\frac{3}{4}$ " - 403 $\frac{1}{4}$ "
16	415 $\frac{1}{4}$ " - 416 $\frac{3}{4}$ "	411 $\frac{3}{4}$ " - 413 $\frac{1}{4}$ "	409 $\frac{3}{4}$ " - 411 $\frac{1}{4}$ "
C	431 $\frac{1}{4}$ " - 432 $\frac{3}{4}$ "	427 $\frac{3}{4}$ " - 429 $\frac{1}{4}$ "	425 $\frac{3}{4}$ " - 427 $\frac{1}{4}$ "
16	447 $\frac{1}{4}$ " - 448 $\frac{3}{4}$ "	443 $\frac{3}{4}$ " - 445 $\frac{1}{4}$ "	441 $\frac{3}{4}$ " - 443 $\frac{1}{4}$ "
24	455 $\frac{1}{4}$ " - 456 $\frac{3}{4}$ "	451 $\frac{3}{4}$ " - 453 $\frac{1}{4}$ "	449 $\frac{3}{4}$ " - 451 $\frac{1}{4}$ "
16	463 $\frac{1}{4}$ " - 464 $\frac{3}{4}$ "	459 $\frac{3}{4}$ " - 461 $\frac{1}{4}$ "	457 $\frac{3}{4}$ " - 459 $\frac{1}{4}$ "
C	479 $\frac{1}{4}$ " - 480 $\frac{3}{4}$ "	475 $\frac{3}{4}$ " - 477 $\frac{1}{4}$ "	473 $\frac{3}{4}$ " - 475 $\frac{1}{4}$ "
16	495 $\frac{1}{4}$ " - 496 $\frac{3}{4}$ "	491 $\frac{3}{4}$ " - 493 $\frac{1}{4}$ "	489 $\frac{3}{4}$ " - 491 $\frac{1}{4}$ "

24	503 $\frac{1}{4}$ "- 504 $\frac{3}{4}$ "	499 $\frac{3}{4}$ "- 501 $\frac{1}{4}$ "	497 $\frac{3}{4}$ "- 499 $\frac{1}{4}$ "
16	511 $\frac{1}{4}$ "- 512 $\frac{3}{4}$ "	507 $\frac{3}{4}$ "- 509 $\frac{1}{4}$ "	505 $\frac{3}{4}$ "- 507 $\frac{1}{4}$ "
C	527 $\frac{1}{4}$ "- 528 $\frac{3}{4}$ "	523 $\frac{3}{4}$ "- 525 $\frac{1}{4}$ "	521 $\frac{3}{4}$ "- 523 $\frac{1}{4}$ "
16	543 $\frac{1}{4}$ "- 544 $\frac{3}{4}$ "	539 $\frac{3}{4}$ "- 541 $\frac{1}{4}$ "	537 $\frac{3}{4}$ "- 539 $\frac{1}{4}$ "
24	551 $\frac{1}{4}$ "- 552 $\frac{3}{4}$ "	547 $\frac{3}{4}$ "- 549 $\frac{1}{4}$ "	545 $\frac{3}{4}$ "- 547 $\frac{1}{4}$ "
16	559 $\frac{1}{4}$ "- 560 $\frac{3}{4}$ "	555 $\frac{3}{4}$ "- 557 $\frac{1}{4}$ "	553 $\frac{3}{4}$ "- 555 $\frac{1}{4}$ "
C	575 $\frac{1}{4}$ "- 576 $\frac{3}{4}$ "	571 $\frac{3}{4}$ "- 573 $\frac{1}{4}$ "	569 $\frac{3}{4}$ "- 571 $\frac{1}{4}$ "
16	591 $\frac{1}{4}$ "- 592 $\frac{3}{4}$ "	587 $\frac{3}{4}$ "- 589 $\frac{1}{4}$ "	585 $\frac{3}{4}$ "- 587 $\frac{1}{4}$ "
24	599 $\frac{1}{4}$ "- 600 $\frac{3}{4}$ "	595 $\frac{3}{4}$ "- 597 $\frac{1}{4}$ "	593 $\frac{3}{4}$ "- 595 $\frac{1}{4}$ "
16	607 $\frac{1}{4}$ "- 608 $\frac{3}{4}$ "	603 $\frac{3}{4}$ "- 605 $\frac{1}{4}$ "	601 $\frac{3}{4}$ "- 603 $\frac{1}{4}$ "
C	623 $\frac{1}{4}$ "- 624 $\frac{3}{4}$ "	619 $\frac{3}{4}$ "- 621 $\frac{1}{4}$ "	617 $\frac{3}{4}$ "- 619 $\frac{1}{4}$ "
16	639 $\frac{1}{4}$ "- 640 $\frac{3}{4}$ "	635 $\frac{3}{4}$ "- 637 $\frac{1}{4}$ "	633 $\frac{3}{4}$ "- 635 $\frac{1}{4}$ "
24	647 $\frac{1}{4}$ "- 648 $\frac{3}{4}$ "	643 $\frac{3}{4}$ "- 645 $\frac{1}{4}$ "	641 $\frac{3}{4}$ "- 643 $\frac{1}{4}$ "
16	655 $\frac{1}{4}$ "- 656 $\frac{3}{4}$ "	651 $\frac{3}{4}$ "- 653 $\frac{1}{4}$ "	649 $\frac{3}{4}$ "- 651 $\frac{1}{4}$ "
C	671 $\frac{1}{4}$ "- 672 $\frac{3}{4}$ "	667 $\frac{3}{4}$ "- 669 $\frac{1}{4}$ "	665 $\frac{3}{4}$ "- 667 $\frac{1}{4}$ "
16	687 $\frac{1}{4}$ "- 688 $\frac{3}{4}$ "	683 $\frac{3}{4}$ "- 685 $\frac{1}{4}$ "	681 $\frac{3}{4}$ "- 683 $\frac{1}{4}$ "
24	695 $\frac{1}{4}$ "- 696 $\frac{3}{4}$ "	691 $\frac{3}{4}$ "- 693 $\frac{1}{4}$ "	689 $\frac{3}{4}$ "- 691 $\frac{1}{4}$ "
16	703 $\frac{1}{4}$ "- 704 $\frac{3}{4}$ "	699 $\frac{3}{4}$ "- 701 $\frac{1}{4}$ "	697 $\frac{3}{4}$ "- 699 $\frac{1}{4}$ "
C	719 $\frac{1}{4}$ "- 720 $\frac{3}{4}$ "	715 $\frac{3}{4}$ "- 717 $\frac{1}{4}$ "	713 $\frac{3}{4}$ "- 715 $\frac{1}{4}$ "
16	735 $\frac{1}{4}$ "- 736 $\frac{3}{4}$ "	731 $\frac{3}{4}$ "- 733 $\frac{1}{4}$ "	729 $\frac{3}{4}$ "- 731 $\frac{1}{4}$ "
24	743 $\frac{1}{4}$ "- 744 $\frac{3}{4}$ "	739 $\frac{3}{4}$ "- 741 $\frac{1}{4}$ "	737 $\frac{3}{4}$ "- 739 $\frac{1}{4}$ "
16	751 $\frac{1}{4}$ "- 752 $\frac{3}{4}$ "	747 $\frac{3}{4}$ "- 749 $\frac{1}{4}$ "	745 $\frac{3}{4}$ "- 747 $\frac{1}{4}$ "

C	767 ¼"- 768 ¾"	763 ¾"- 765 ¼"	761 ¾"- 763 ¼"
16	783 ¼"- 784 ¾"	779 ¾"- 781 ¼"	777 ¾"- 779 ¼"
24	791 ¼"- 792 ¾"	787 ¾"- 789 ¼"	785 ¾"- 787 ¼"
16	799 ¼"- 800 ¾"	795 ¾"- 797 ¼"	793 ¾"- 795 ¼"
C	815 ¼"- 816 ¾"	811 ¾"- 813 ¼"	809 ¾"- 811 ¼"
16	831 ¼"- 832 ¾"	827 ¾"- 829 ¼"	825 ¾"- 827 ¼"
24	839 ¼"- 840 ¾"	835 ¾"- 837 ¼"	833 ¾"- 835 ¼"
16	847 ¼"- 848 ¾"	843 ¾"- 845 ¼"	841 ¾"- 843 ¼"
C	863 ¼"- 864 ¾"	859 ¾"- 861 ¼"	857 ¾"- 859 ¼"
16	879 ¼"- 880 ¾"	875 ¾"- 877 ¼"	873 ¾"- 875 ¼"
24	887 ¼"- 888 ¾"	883 ¾"- 885 ¼"	881 ¾"- 883 ¼"
16	895 ¼"- 896 ¾"	891 ¾"- 893 ¼"	889 ¾"- 891 ¼"
C	911 ¼"- 912 ¾"	923 ¾"- 925 ¼"	921 ¾"- 923 ¼"
16	927 ¼"- 928 ¾"	923 ¾"- 925 ¼"	921 ¾"- 923 ¼"
24	935 ¼"- 936 ¾"	931 ¾"- 933 ¼"	929 ¾"- 931 ¼"
16	943 ¼"- 944 ¾"	939 ¾"- 941 ¼"	937 ¾"- 939 ¼"
C	959 ¼"- 960 ¾"	955 ¾"- 957 ¼"	953 ¾"- 955 ¼"
16	975 ¼"- 976 ¾"	971 ¾"- 973 ¼"	969 ¾"- 971 ¼"
24	983 ¼"- 984 ¾"	979 ¾"- 981 ¼"	977 ¾"- 979 ¼"
16	991 ¼"- 992 ¾"	987 ¾"- 989 ¼"	985 ¾"- 987 ¼"
C	1007 ¼"-1008 ¾"	1003 ¾"-1005 ¼"	1001 ¾"-1003 ¼"
16	1023 ¼"-1024 ¾"	1019 ¾"-1021 ¼"	1017 ¾"-1019 ¼"

24	1039 ¼"-1040 ¾"	1035 ¾"-1037 ¼"	1033 ¾"-1035 ¼"
16	1055 ¼"-1056 ¾"	1051 ¾"-1053 ¼"	1049 ¾"-1051 ¼"
C	1071 ¼"-1072 ¾"	1067 ¾"-1069 ¼"	1065 ¾"-1067 ¼"
16	1087 ¼"-1088 ¾"	1083 ¾"-1085 ¼"	1081 ¾"-1083 ¼"
24	1095 ¼"-1096 ¾"	1091 ¾"-1093 ¼"	1089 ¾"-1091 ¼"
16	1103 ¼"-1104 ¾"	1099 ¾"-1101 ¼"	1097 ¾"-1099 ¼"
C	1119 ¼"-1120 ¾"	1115 ¾"-1117 ¼"	1113 ¾"-1115 ¼"
16	1135 ¼"-1136 ¾"	1131 ¾"-1133 ¼"	1129 ¾"-1131 ¼"
24	1143 ¼"-1144 ¾"	1139 ¾"-1141 ¼"	1137 ¾"-1139 ¼"
16	1151 ¼"-1152 ¾"	1147 ¾"-1149 ¼"	1145 ¾"-1147 ¼"
C	1167 ¼"-1168 ¾"	1163 ¾"-1165 ¼"	1161 ¾"-1163 ¼"
16	1183 ¼"-1184 ¾"	1179 ¾"-1181 ¼"	1177 ¾"-1179 ¼"
24	1199 ¼"-1200 ¾"	1195 ¾"-1197 ¼"	1193 ¾"-1195 ¼"

Figure 0-B

39 These measurements are for location reference only and will not be seen on the tape. I may run the inches, between feet, out till they reach four digits (999). After that, the last eighteen feet will have the numbers 1-11 expressing the respective inches.



The Trimmer Layout System:

between 2 ¼" and 43 ¼"

43 An inch-and-a-half icon, with a large white "T" in its center, is a common trimmer for each of the standard residential door rough openings. In determining rough opening sizes we add two inches to the door size. These two inches include jambs (2 x 3/4"), and a half-inch for shimming. Two trimmers, to support a header, are placed on each side of this opening. On the Framer's Layout and Cutting Guide these functions are pre-measured for speed and accuracy, and again make it easy to visualize how the door opening fits into the scheme of the wall. The Common Trimmer has a cartouche on its forward edge with "0"- "0" inside it and is located between 2 ¼" and 3 ¾". All the other trimmer icons have their respective rough opening sizes in a cartouche on their lead edges (i.e. R.O. 2-6), and also have a large white "T" in their center.

Residential Door Rough Openings (R.O.'s)

Floating Read

2'-0" (26") between 29 ¾" & 31 ¼"

2'-6" (32") between 35 ¾" & 37 ¼"

2'-8" (34") between 37 ¾" & 39 ¼"

2'-10" (36") between 39 ¾" & 41 ¼"

3'-0" (38") between 41 ¾" & 43 ¼"- superimposed upon the first 5 ½" offset/

combination 16" & 24" on center stud icon.

Figure 0-C (see Figure 2-A on drawing 2-4 for trimmer icons)

Wall Tee Layout System:

between 4  $\frac{3}{4}$ " and 13  $\frac{1}{4}$ "

40 When you have intersecting walls, a stud length two-by is turned sideways, in the middle of one wall, to provide a nailing surface to attach the end of the other wall. This two-by is then itself supported by two other perpendicular two-by's, referred to as wings, on each of its sides. These wings, which are the width of the plates, strengthen the first two-by and provide good nailing surfaces to tie into the plates. The combination of the sideways two-by and its two wings are called a (wall) "Tee". The width of the sideways two-by will be the width (2x4 or 2x6) of the intersecting wall, and the width of the two-by wings will be the width of the first wall (2x4 or 2x6).

41 The Common Wall Tee Wing, between 4  $\frac{3}{4}$ " & 6  $\frac{1}{4}$ ", and the 2x4 and 2x6 Tee Wings all have large red "T's" in their centers. The 2x4 Tee wing is located between 9  $\frac{3}{4}$ " & 11  $\frac{1}{4}$ ", 3  $\frac{1}{2}$ " (the width of a 2x4) from the Common Tee Wing. The 2x6 Tee Wing is located between 11  $\frac{3}{4}$ " & 13  $\frac{1}{4}$ ", 5  $\frac{1}{2}$ " (the width of a 2x6) from the Common Tee Wing. Both the 2x4 and 2x6 Tee Wings are superimposed on the first two stud icons for 3  $\frac{1}{2}$ " and 5  $\frac{1}{2}$ " offsets, making them easily recognizable over time.

42 The Wall Tee Layout System is a floating read: just lay the open tape on your plate and mark in the appropriate tee (2x4 or 2x6). This tee layout system gives us another advantage: whenever you want a quick read on either a 2x4 or 2x6 width (3  $\frac{1}{2}$ ", or 5  $\frac{1}{2}$ "), you have the measurement built in. Just follow the arrows/lines between the Common Tee Wing and the respective 2x4 or 2x6 Tee Wings. Each of these arrow lines has an elliptical legend/sign designating the respective two-by and/or tee size. (see Figure 2-C on drawing 2-4 )

### Cutting Icons:

Read from the end of tape

44 Once the plates have been laid out we are ready to cut the other wall components. All cut lines, on the Framers' Guide, are  $\frac{1}{8}$ " thick, the width of a standard carbide-tipped blade, so that they may be marked on either side depending on your cutting preference, and are to be read from the end of the tape. The cutting icon consists of twin lines, an  $\frac{1}{8}$ " apart, connected by diagonal lines. Cutting icons will have angular readings, such as hexagonal or square legend/signs. (see Figures 3-A, 3-B, 3-C & 3-D on drawing 3-4).

### Standard 92 5/8" Stud

Read from the end of the tape

45 The Framers' Guide has a cutting mark for standard stud lengths if you need to cut your own. We use the 92 5/8" length so that when the thickness of the plates (including a double top plate) is added ( $4 \frac{1}{2}$ ") we have a total wall height of  $97 \frac{1}{8}$ ", making allowances for our drywall installation:  $\frac{1}{2}$ " for the lid (top piece), and two 4' x 8' sheets (always hung horizontally for structural reinforcement);  $4' + 4' + \frac{1}{2}" = 96 \frac{1}{2}"$ .  $97 \frac{1}{8}" - 96 \frac{1}{2}" = 5/8"$ . The 5/8" difference allows for easy drywall installation and is covered later by baseboard.

### The Standard 81" Interior Door Trimmer

Read from the end of tape

46 Regardless of the wall height our trimmers will be standard. This is a function that is used over and over again in home building. Having a cutting line pre-measured for accuracy will speed up the process.

## Header Cuts:

Read from the end of tape

47 Headers are strong horizontal components that are placed above openings, such as doors and windows, to support any framing, including roofing, above them. A typical header is comprised of two two-bys, quite often 2x12's, standing on their sides parallel to each other, and nailed together with either a ½" plywood spacer or a 2 ½" block spacer between them; depending on the width of the wall being built. Interior doors that do not require a header can use the Header Cut measurement for their "flats": short, non-load bearing, cross pieces that sit on your trimmers.

48 The Framer's Layout and Cutting Guide has the standard interior door header lengths pre-measured for accuracy and speed, represented by hexagonal legend/signs on twin cut lines (1/8" thick). To obtain the lengths for standard pre-hung door headers we take the width of the door, say 24" for a 2-0 door, and add three inches for the two supporting trimmers, plus two inches for the rough opening (two ¾" jambs and ½" shimming space for plumbing adjustments);  $24' + 3'' + 2'' = 29''$ .

## Standard Door Header Cutting Icons

Read from the end of the tape

29"-29 1/8" (for 2-0 door) same cut as second 14 ½" block

35"-35 1/8" (for 2-6 door)

37"-37 1/8" (for 2-8 door)

39"-39 1/8" (for 2-10 door)

41"-41 1/8" (for 3-0 door)

Figure 0-D

49 The Framer's Layout and Cutting Guide is designed so you can make marks for multiple block cuts easily. A typical block, between studs, rafters, or joists, is cut  $1/16''$  shorter than its nominal length to allow for cupping in said studs, rafters, and joists. A standard  $22\frac{1}{2}''$  block is cut at  $22\frac{7}{16}''$ , and a  $14\frac{1}{2}''$  block is cut at  $14\frac{7}{16}''$ .

When we are adding sixteenths, plus an eighth inch for our cuts, multiple cuts get a little confusing. If you have ever had to cut blocks you would understand how the Framer's Guide would really speed up the process.

50 The Framer's Guide has cutting icons for both standard and starter blocking. The numbers in the icons have been abbreviated to save space:  $22 = 22\frac{7}{16}''$ ,  $21 = 21\frac{11}{16}''$ ,  $14 = 14\frac{7}{16}''$ ,  $13 = 13\frac{11}{16}''$  (coloring and icon subject to change).

#### Standard Blocking (see Figure 3-B on drawing 3-4)

##### 14 $\frac{1}{2}''$ blocks ( $14\frac{7}{16}''$ )

14  $\frac{7}{16}''$  - 14  $\frac{9}{16}''$

29" - 29  $\frac{1}{8}''$

43  $\frac{9}{16}''$  - 43  $\frac{11}{16}''$

58  $\frac{1}{8}''$  - 58  $\frac{1}{4}''$

72  $\frac{11}{16}''$  - 72  $\frac{13}{16}''$

87  $\frac{1}{4}''$  - 87  $\frac{3}{8}''$

101  $\frac{13}{16}''$  - 101  $\frac{15}{16}''$

116  $\frac{3}{8}''$  - 116  $\frac{1}{2}''$

##### 22 $\frac{1}{2}''$ blocks ( $22\frac{7}{16}''$ )

22  $\frac{7}{16}''$  - 22  $\frac{9}{16}''$

45" - 45  $\frac{1}{8}''$

67  $\frac{9}{16}''$  - 67  $\frac{11}{16}''$

90  $\frac{1}{8}''$  - 90  $\frac{1}{4}''$

112  $\frac{11}{16}''$  - 112  $\frac{13}{16}''$

130 15/16" - 131 1/16"

135 1/4" - 135 3/8"

145 1/2" - 145 5/8"

157 13/16" - 157 15/16"

160 1/16" - 160 3/16"

174 5/8" - 174 3/4"

180 3/8" - 180 1/2"

189 3/16 - 189 5/16

Figure 0-E

Starter Blocking (see Figure 3-B on drawing 3-4)

13 3/4" Blocking (13 11/16")

21 3/4" Blocking (21 11/16")

13 11/16" - 13 13/16"

21 11/16" - 21 13/16"

27 1/2" - 27 5/8"

41 5/16" - 41 7/16"

43 1/2" - 43 5/8"

55 1/8" - 55 1/4"

65 5/16" - 65 7/16"

68 15/16" - 69 1/16"

82 3/4" - 82 7/8"

87 1/8" - 87 1/4"

96 9/16" - 96 11/16"

108 15/16" - 109 1/16"

110 3/8" - 110 1/2"

124 3/16" - 124 5/16"

130 3/4" - 130 7/8"

138" - 138 1/8"

151 13/16" - 151 15/16"

152 9/16" - 152 11/16"

163 5/8" - 163 3/4"

174 3/8" - 174 1/2"

177 7/16" - 177 9/16"

Figure 0-F

## Commercial Applications:

51 Besides the squaring functions and the stud locations there are two other functions expressed on the Framer's Layout and Cutting Guide that can be used in commercial metal stud construction: the 3-0 Door Rough Opening; and the 3-0 door "Header Mark".

### 3-0 Door Rough Opening

### Floating

52 Although there are no trimmers in commercial interior walls, for there are no headers (no load bearing interior walls), the Framer's Layout and Cutting Guide has large black "T's" in the icons representing the doorway studs. They are placed  $40\frac{1}{2}$ " apart; the door size plus  $4\frac{1}{2}$ ". The rough opening is between 9" and  $49\frac{1}{2}$ ". The icons are located at  $7\frac{1}{2}$ "- 9", and  $49\frac{1}{2}$ "- 51".

### Header Mark

### Read from the end of tape

53 This icon marks the location of the crosspiece or "flat" above the 3-0 commercial interior door. The end of the tape is placed at the bottom of the bottom plate and is pulled to  $86\frac{1}{2}$ ", where the header mark is found. A mark (>) would be made at the header mark and an "X" placed to its forward edge on each of the doorway stud/trimmers, indicating where the crosspiece is to go.

## Overlaps:

54 There are a few places on the Framer's Layout and Cutting Guide where icons overlap. With a little practice these idiosyncrasies will not be a problem. Here is a list of overlaps: the 2x4 & 2x6 wall tee wings share the same space with first  $5\frac{1}{2}$ " &  $3\frac{1}{2}$ " offsets for 16" O.C. studs, respectively; the 2-0 header cut shares the same space with the second  $14\frac{7}{16}$ " block, between 29" and  $29\frac{1}{8}$ "; and the trimmer for the 3-0 residential door rough opening shares the same space as the first  $5\frac{1}{2}$ " offset stud icon for 16" & 24" O.C. combined, between  $41\frac{3}{4}$ " &  $43\frac{1}{4}$ ".

55 The only three overlaps that weren't "clean" were: where the second  $21\frac{11}{16}$ " block and the third  $14\frac{7}{16}$ " block share a sixteenth inch space ( $43\frac{10}{16}$ " to  $43\frac{11}{16}$ "); where a  $14\frac{7}{16}$ " block is split over the forward edge of a stud icon at  $72\frac{3}{4}$ "; and where a  $22\frac{7}{16}$ " block is split over the forward edge of a stud icon, at  $112\frac{3}{4}$ ". With some color added and some "clean" graphics, and a little practice, these overlaps will be easily recognized.

56 Quite often block cuts will lie within stud icons but won't interfere with their marking edges. Also, just past the commercial header mark, two block cuts are right next to each other and one of the legend/signs has to be raised higher than its normal position. All overlaps are illustrated in the drawings.



SEQUENCE LISTING "Not Applicable"